

# Save the Date!

On Wednesday, **September 7**, from **12:00 – 1:00**, visiting scientist **Dennis Hallema** will present:

**“Contributions of wildfire, drought, and increased precipitation to regional streamflow patterns in the Western Cordillera.”**

This ‘brown bag’ talk will take place in the **Fraser Conference Room** at RMRS Fort Collins Headquarters and will be broadcast to field sites via **video teleconference**.

## Presentation Summary

The magnitude and longevity of wildfire impacts on streamflow vary per region, depending on pre-fire conditions, burn severity, and post-fire climate. Short-term effects such as flooding and excessive erosion are reported throughout the Rocky Mountains and the Southwest; however, long-term wildfire impacts on annual water yields, low flows, and timing of water availability are no less substantial, yet equally difficult to predict. Large-scale effects of fire-related soil surface sealing and hydrophobicity are still poorly understood, and climate variability is another major factor affecting water yields and flood risk in



downstream areas. For example, a collaborative study with Southern Research Station scientists has revealed that one watershed in Arizona produced 266% more annual yield in the 5 years following a major wildfire, mostly as a result of vegetation loss, while a California watershed produced 64% less runoff, because drought offset the otherwise increased runoff attributed to wildfire effects on vegetation and hydrophobicity. In this seminar, Hallema will demonstrate how to analyze multi-year patterns in streamflow, and how to assess the relative importance of wildfire disturbance and climate variability to multi-year flow trends.

*Pictured: An aerial view of lands burned in the 2012 High Park Fire. Photo by William M. Ciesla, Forest Health Management International, Bugwood.org.*

## About the Speaker



Dennis Hallema joined the Eastern Forest Environmental Threat Assessment Center in 2014 as part of the U.S. Forest Service Participation Program administered by the Oak Ridge Institute for Science and Education (U.S. Department of Energy). His research for the Joint Fire Science Program focuses on the long-term effects of wildland fires on water resources in the conterminous United States and seasonal runoff responses to fuel management strategies, which allows for identifying the municipal watersheds that are most vulnerable to fire. Hallema holds B.Sc. and M.Sc.

degrees in Geosciences from Utrecht University in the Netherlands, and a Ph.D. in Continental Waters and Society from Montpellier SupAgro/Institut National de la Recherche Agronomique in France. He contributed to hydrologic assessment studies related to climate change and agriculture at Institut National de la Recherche Scientifique in Canada, and subsequently at Université Laval, also in Canada.